

MANUFACTURING EXTENSION PARTNERSHIP

Success Stories from the Field

Beckett Air Inc.

Ohio Manufacturing Extension Partnership

Quality Soars While Costs Drop At Beckett Air

Client Profile:

Beckett Air Inc., founded in 1988, is a manufacturer of blower wheels and housings for the HVAC market. The company's 120 employees work at its facility in North Ridgeville, Ohio.

Situation:

Beckett Air needed to redevelop the way its hubs and blower wheels were attached to each other to create a stronger construction and assembly process. The company called in CAMP, Inc., a NIST MEP network affiliate, for assistance.

Solution:

CAMP's Advanced Manufacturing Center (AMC) helped Beckett Air to create a new patented "Lugged Hub Design" for a more robust method of attaching the hub to the blower wheel. Beginning with a finite element analysis, the AMC identified ways for Beckett Air to fine-tune their new design and assembly procedures. This new design resulted in a positive attachment of the component parts, eliminating the potential for any type of field failures associated with the hub breaking away from the backplate.

With this new design came the decision to vertically integrate and manufacture the redesigned hub in-house. In order to start up a new hub-manufacturing department, Beckett Air invested in significant capital equipment and increased employment. To support these enhancements, the company also needed to invest in custom and innovative secondary equipment, designed and built by CAMP.

AMC engineers then designed and built a series of custom-made, fully automated machines for the company, including the first secondary assembly machine for the new hub-manufacturing cell. This high-speed automation assures excellent bore quality and significantly reduced assembly cost. Other automated machines manufactured for Beckett Air included an automatic staking machine for setscrews prior to their assembly to the hub and a setscrew insertion machine. AMC staff then developed a fully automatic secondary machine with the flexibility to run the full range of hub sizes and styles produced in Beckett Air's new manufacturing cell.

In addition, CAMP consultants performed Lean 101 and 5S seminars, introducing Beckett Air to the major components and principles of lean manufacturing through hands-on learning.

Results:

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Received three U.S. Patents in 2001 for the new attachment design.

Saved 59 percent on the total cost of the part.

Reduced hub manufacturing cycle time from 30 seconds to just over four seconds per unit.

Reduced inventory and lead times and improved quality.

Increased manufacturing capacity and reduced internal manufacturing costs.

Eliminated the possibility of any type of field failures associated with the hub breaking away from the rest of the wheel.

Testimonial:

"Our experience with CAMP was unique in that we utilized their expertise from product design and analysis through their ability to design and manufacture custom equipment as well as help in the concepts of lean manufacturing. No other machine builder could offer as much."

Joe Andulics, Director, Manufacturing Engineering